

Electrochemical Reactor for Producing Oxygen From Carbon Dioxide, Phase I

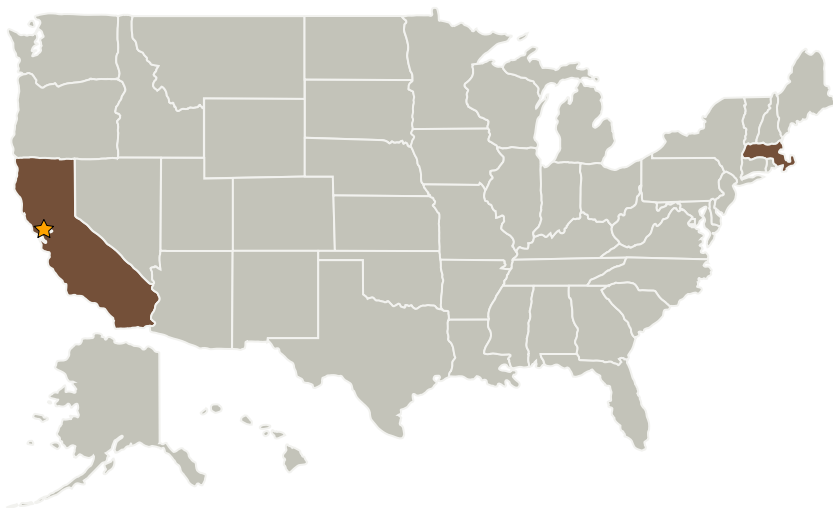
Completed Technology Project (2006 - 2006)



Project Introduction

An electrochemical reactor is proposed by MicroCell Technologies, LLC to electrochemically reduce carbon dioxide to oxygen. In support of NASA's advanced life support processes and human exploration missions, recovering oxygen from carbon dioxide is important since oxygen resupply is not a viable option. The proposed process is based on using a low temperature molten salt to selectively adsorb carbon dioxide from the ambient and reducing it to an oxide ion and carbon monoxide. The oxide ion is subsequently oxidized to oxygen. This carbon dioxide removal and oxygen generator may be used by NASA to provide oxygen for cabin crew life support or for propellant generation on Mars as a part of the In Situ Resource Utilization (ISRU) process. During the Phase I project, we will demonstrate the electrochemical reactor using pure carbon dioxide and using low concentrations of carbon dioxide in air.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Reactive Innovations, LLC	Supporting Organization	Industry	Westford, Massachusetts



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations

California

Massachusetts

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
 - └ TX06.1 Environmental Control & Life Support Systems (ECLSS) and Habitation Systems
 - └ TX06.1.1 Atmosphere Revitalization